CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2006-XXXX

NPDES NO. CA0081485

TENTATIVE WASTE DISCHARGE REQUIREMENTS FOR CUTLER-OROSI JOINT POWERS WASTEWATER AUTHORITY WASTEWATER TREATMENT FACILITY TULARE COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

1. The Cutler-Orosi Joint Powers Wastewater Authority (hereafter Discharger) submitted a Report of Waste Discharge (RWD), dated 20 January 2003, and applied for permit renewal to discharge pollutants under the National Pollutant Discharge Elimination System (NPDES) from its wastewater treatment and disposal facility (WWTF). The RWD requests an increase in flow from 1.8 mgd to 2.0 mgd.

2. The Discharger's WWTF serves the communities of Cutler, Orosi, East Orosi, Yettem, Seville, and Sultana. The WWTF is in Cutler at 40401 Road 120 in Tulare County, in Section 24, T16S, R25E, MDB&M, and as shown on Attachment A, a part of this Order. The WWTF and its discharges lie in the Alta Hydrologic Area (No. 551.60) of the South Valley Floor Hydrologic Unit (HU) as shown in the interagency hydrologic maps prepared by the California Department of Water Resources (DWR) in August 1986.

3. Waste Discharge Requirements Order No. 97-106, an NPDES permit adopted on 20 June 1997, regulates the discharge of 2.0 mgd of effluent from the WWTF to land via Discharge 001 and into Sand Creek via Discharge 002. Order No. 97-106 prohibits discharge or overflow of untreated or partially treated waste and imposes effluent limits for Discharge 001 and Discharge 002.

4. The WWTF includes headworks, grit removal, pump screws, two primary clarifier-digesters, two trickling filters, an oxidation ditch, a secondary clarifier, ultraviolet light (UV) disinfection, two unlined sludge lagoons, and 16 unlined sludge drying beds. Treated wastewater is stored in one of two unlined holding ponds prior to discharge or discharged directly without storage. The unlined holding ponds have a total pond bottom of 16 acres. Effluent evaporates and percolates from the holding ponds. A flow schematic is shown in Attachment B.

5. Discharge 001 is recycling of wastewater on 106 acres of Discharger owned land (Use Area), which is in Section 24, T16S, R24E, MDB&M. The Discharger has an additional 20 acres available for irrigation, pending the installation of irrigation piping. The Discharger grows fodder, fiber, and seed crops on the land, primarily sudan grass in the summer and winter

wheat or occasionally natural clover in the winter. Both sudan grass and winter wheat are moderately salt tolerant.

6. Discharge 002 is to Sand Creek, a water of the United States, which runs parallel to the WWTF on its south and east sides. Discharge 002 occurs from the WWTF at Longitude 119°18'12" West; Latitude 36°31'23" North. Order No. 97-106 permits discharge to Sand Creek from November 1 through April 30 of each year.

7. Sludge is dewatered in the unlined sludge drying beds. The sludge disposal method and location are evaluated separately for each disposal event based upon sludge characteristics and the suitability of the proposed disposal area. On 23 October 2003, Regional Board staff inspected the WWTF and observed three years of accumulated sludge stored on-site pending selection of an appropriate disposal site. The Discharger's Sludge Management Plan, written in 1982, does not reflect current practices, and needs to be updated.

8. The RWD identifies an average daily effluent flow of 1.35 million gallons per day (mgd) and a maximum daily effluent flow of 1.63 mgd. The effluent design flow for the WWTF is 2.0 mgd. Self monitoring reports from 2000 to 2002 indicated an average daily effluent flow of 1.50 mgd and maximum daily effluent flow of 2.12 mgd.

9. Based on self-monitoring reports submitted from January 2000 through February 2005, the WWTF influent and effluent quality has been as follows:

	Average Concentration (mg/L)		
Parameter	Influent	Discharge 001	Discharge 002
BOD[1]	200	2.1	2.4
Total Suspended Solids	183	3.0	3.8
Settleable Solids	3.1	0.1	0.1

[1] 5-day, 20°C biochemical oxygen demand

10. Based on self-monitoring reports from January 2002 through December 2003, conductivity at 25° C (EC) of source water as a weighted average of all sources was 459 µmho/cm.

11. Since 1997 the Discharger has been issued notices of violation (NOV) for:

    a. Incomplete, late, or missing monitoring reports;
    b. Lack of and poor maintenance of flow meters;
    c. Inadequate sampling, analyses, calibration and records retention;
    d. Inadequate maintenance of treatment units;
    e. Improper sludge storage and disposal; and
    f. Failure to consistently retain the appropriate grade WWTF operator.

In May of 2003, a NOV was issued for these deficiencies.

12. Based on the information obtained from the *Lines of Equal Elevation of Water Wells in Unconfined Aquifer,* published by Department of Water Resources in spring 1995, the depth of groundwater in the region was about 45 feet below ground surface. During wet years, the groundwater rises to less than five feet below ground surface.

APPLICABLE LAWS, REGULATIONS, POLICIES, AND PLANS

13. The federal Clean Water Act (CWA) Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 306 and 307 (Toxic and Pretreatment Effluent Standards) as amended and their implementing regulations in Title 40, Code of Federal Regulations (40 CFR), Parts 122, 125, 131, 133, 136, 403, and 503 that are applicable to this discharge establish the bases for the effluent limitations, pretreatment requirements, and certain sludge disposal requirements in this Order.

14. California Water Code (CWC), Division 7, and its implementing regulations in Title 23, California Code of Regulations (CCR) (Title 23), establish the water quality protection, permitting and enforcement requirements in this Order.

15. Section 13263.6(a) of the CWC requires that "the regional board shall prescribe effluent limitations as part of the waste discharge requirements of a publicly owned treatment works (POTW) for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRKA) indicate as discharged into the POTW, for which the State Water Resources Control Board (SWRCB or State Board) or the Regional Board has established numeric water quality objectives and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective." Reports generated through the United States Environmental Protection Agency's (USEPA) Toxic Release Inventory Explorer (TRI) on 14 April 2005 indicate that there is no data for TRI on-site and off-site reported, disposed of or otherwise released chemicals from Cutler or Orosi, East Orosi, Yettem, and Sultana.

16. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition,* adopted in 1995, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives (WQOs), and contains implementation programs and policies to achieve WQOs for all waters of the Basin. These requirements implement the Basin Plan.

17. The USEPA adopted the *National Toxics Rule* (NTR) on 22 December 1992, which was amended on 4 May 1995 and 9 November 1999, and the *California Toxics Rule* (CTR) on 18 May 2000, which was amended on 13 February 2001. These Rules contain water quality standards applicable to this discharge. The State Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*

(known as the State Implementation Policy or SIP) on 2 March 2000, which contains policies and procedures for implementation of the NTR and the CTR. The SIP was updated on 9 February 2005.

18. Federal regulations at 40 CFR Part 131.12 (40 CFR 131.12) establish a federal antidegradation policy that applies to the surface water discharge that is the subject of this Order. State Board Resolution No. 68-16 (hereafter Resolution 68-16 or the "Antidegradation" Policy) requires that discharge of waste maintain all high quality waters of the State until it is demonstrated that any change in quality is consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in water quality policies (i.e., the change results in exceedances of WQOs).

19. California Business and Professions Code (CBPC) Division 3, Chapters 7 and 12.5, and their implementing regulations in Title 16, CCR, provide the bases for qualification requirements applicable to technical work and technical report preparation as specifically stated in this Order.

Department of Health Services Recommendations/Regulations

20. Domestic wastewater contains pathogens harmful to humans that are typically measured by means of total or fecal coliform, as indicator organisms. California Department of Health Services (DHS), which has primary statewide responsibility for protecting public health, has established statewide criteria in Title 22, CCR, Section 60301, et seq., (hereafter Title 22) for recycled water.

21. The 1988 Memorandum of Agreement (MOA) between DHS and the State Board establishes basic principles for application of recycled water. In addition, the MOA allocates primary areas of responsibility and authority between these agencies, and provides for methods and mechanisms necessary to assure ongoing, continuous future coordination of activities relative to the use of recycled water in California.

22. Title 22, Section 60304, requires that recycled water used for the surface irrigation of fodder crops (e.g., alfalfa) be at least undisinfected secondary recycled water. Title 22, Section 60301.900, defines secondary recycled water as "oxidized water," which, according to Title 22, Section 60301.650, is "…wastewater in which the organic matter has been stabilized, is nonputrescible, and contains dissolved oxygen." Title 22 criteria do not apply directly to the use of recycled water onsite at a water recycling plant, or wastewater treatment plant, provided access by the public to the area of onsite recycled water use is restricted. Title 22 criteria do not apply directly to discharges to waters of the State (e.g., creeks, streams, etc.)

23. DHS drafted *Uniform Guidelines for Wastewater Disinfection*, retyped in November 2000, (Guidelines) that recommend treatment and disinfection levels for discharges to waters of the State. The Guidelines recommend effluent have a median coliform bacteria most probable number (MPN) not exceeding 23/100 mL when:

    a. Discharges are to ephemeral streams that have little or no natural flow during all or part of the year,

    b. There is no nearby habitation,

    c. Recreation is not identified as a beneficial use, and

    d. Contact with the effluent is not encouraged.

GROUNDWATER

Beneficial Uses

24. The underlying groundwater is in the Detailed Analysis Unit (DAU) 239 of the King's Basin Hydrologic Unit (HU). The designated beneficial uses of the groundwater are:

    a. Municipal supply (MUN),

    b. Agricultural supply (AGR),

    c. Industrial service supply (IND), and

    d. Industrial process supply (PRO).

Water Quality Objectives

25. Basin Plan water quality objectives to protect the above beneficial uses include a numerical objective for coliform and narrative objectives for chemical constituents in and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, or animals. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The Basin Plan establishes numerical water quality objectives that quantify maximum permissible concentrations for groundwaters designated as municipal supply. These include maximum contaminant levels (MCLs) in Title 22, CCR (i.e., §64431 (Inorganic Chemicals); §64431 (Fluoride); §64443 (Radioactivity); §64444 (Organic Chemicals); and §64449 (Secondary MCLs - Consumer Acceptance Limits)).

26. As knowledge about concentrations harmful to public health is always expanding, the Basin Plan's incorporation of MCLs by reference is prospective to incorporate changes to MCLs as

changes in Title 22 take effect. However, in the event of such a change, its implementation would be effected through reopening of this Order and reconsideration of discharge requirements. The Basin Plan requires the application of objectives more stringent than MCLs as necessary to ensure that waters do not contain chemical constituents, toxic substances, radionuclides, or pesticides in concentrations that adversely affect domestic drinking water supply, agricultural supply, or some other beneficial use.

27. Quantifying a narrative water quality objective requires a site-specific evaluation of each waste constituent for consistency with the narrative objective using the translation procedures set forth in the Basin Plan. These procedures require the consideration of, among other things, site-specific hydrogeologic and land use factors and relevant numerical criteria and guidelines developed or published by other agencies and organizations.

28. The major constituents of concern in assessing the quality of water for agriculture are salinity (expressed as EC or TDS), boron, chloride, and sodium. In general, animal uses are less sensitive than crops for these constituents. Salinity reduces crop growth by reducing the ability of plant roots to absorb water. The salt tolerance of crops also depends on the frequency and type of irrigation (e.g., drip, furrow, or sprinkler irrigation). Boron is an essential element but can become toxic to some plants when concentrations in water even slightly exceed the amount required for optimal growth. Like salt tolerance, boron tolerance varies with the climate, the soil, and the crop. While boron sensitivity appears to affect a wide variety of crops, sodium and chloride toxicities are mostly limited to tree crops and woody perennials (e.g., citrus, stone-fruit, and vineyard). A predominance of sodium relative to other ions in water may disperse soil aggregates, which in turn, affects virtually all crops by decreasing the permeability of the soil by water and air.

29. *Water Quality for Agriculture* provides general salt tolerance guidelines for many common field, vegetable, forage, and tree crops.

30. In determining the concentrations of salinity, boron, chloride, and sodium in groundwater associated with no adverse affects on agricultural beneficial use in a given area, it is likely that multiple criteria apply. While the most stringent concentration becomes the constraining criterion, it is not necessarily the concentration required to protect all crops typically grown in the area.

31. With respect to specific-ion toxicity, *Water Quality for Agriculture* and other similar references indicate that significant reductions in crop yields can be expected if boron content exceeds 0.7 mg/L for boron sensitive crops (e.g., stone fruit). Similarly, reductions in yields of sodium and chloride sensitive crops are not evident when sprinkler irrigated with water containing sodium and chloride concentrations of up to 3 milliequivalents per liter (meq/L) (i.e., 69 mg/L sodium and 106 mg/L chloride). If such crops are not sprinkler irrigated, the maximum concentrations of sodium and chloride associated with no apparent yield reduction may increase, however the extent of the increase is typically crop specific.

32. In the process of crop irrigation, evaporation and crop transpiration remove water from and

result in accumulation of residual salts in the soil root zone. These salts would retard or inhibit plant growth except for a fraction of irrigation water applied to leach the harmful salt from the root zone. The leached salts eventually enter groundwater.

33. The Basin Plan sets maximum effluent salinity limits for discharges of treated municipal and domestic wastewater to land. It specifically states the maximum EC shall not exceed the EC of the source water plus 500 µmhos/cm. It also states that discharges to areas that may recharge to good quality groundwater shall not exceed an EC at 1000 µmhos/cm, a chloride concentration of 175 mg/L, or a boron concentration at 1.0 mg/L.

34. The use of municipal wastewater for irrigation at agronomic rates will have a comparable impact on groundwater as fresh water of comparable quality. Beneficial reuse of wastewater conserves freshwater resources and is encouraged within water short areas by the Basin Plan as well as the legislature (CWC 13500 et. Seq.)

35. The list of crops in Finding 5 is not intended as a definitive inventory of crops that are or could be grown in the area potentially affected by the discharge. Based on climate, soil type, and natural background water quality, other crops sensitive to salt and boron might be capable of being grown in the area, and changing market conditions could drive a change in cropping patterns. Additional information is necessary to determine existing and potential local cropping patterns for areas potentially affected by the discharge.

Groundwater Degradation/Limitations

36. In response to Cease and Desist Order No. 96-060, the Discharger submitted an Irrigation Management Plan on 16 April 1996. The plan includes water balance and nitrogen balance calculations. The nitrogen balance calculations for a 2.0 mgd design flow show that the nitrogen loading is below the loading rates recommended by USEPA for all months except October. For the month of October the Discharger proposed to store the wastewater in a lined pond and discharge after mixing with other months' wastewater amounts. No lined ponds exist at the WWTF.

37. Domestic wastewater contains constituents such as oxygen demanding substances (i.e., BOD_5), salinity constituents, pathogens, nutrients (e.g., nitrate), organics, and metals. Discharge to land in a manner that allows waste infiltration and percolation may result in an increase in the concentration of one or more of these constituents in groundwater. To be permissible, any increase in the concentration of these constituents in groundwater must be consistent with the antidegradation provisions of Resolution 68-16.

38. The discharge authorized herein and the treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, CCR, §20005 et seq. (hereafter Title 27). The exemption, pursuant to §20090(a) of Title 27, is based on the following:

    a. The waste consists primarily of domestic sewage and treated effluent;

b. The waste discharge requirements are consistent with water quality objectives; and
c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment facility.

39. Excessive residual organic carbon in percolating effluent can cause elevated concentrations of dissolved manganese and iron in groundwater.

40. Degradation of groundwater by constituents that can be effectively removed by conventional treatment (e.g., total coliform bacteria), and by constituents (e.g., toxic chemicals) other than those specified in the groundwater limitations in this Order is inconsistent with Resolution 68-16. Degradation of groundwater by waste constituents in the discharge after subjecting them to effective source control, treatment, and control may be determined consistent with Resolution 68-16, after consideration of reasonableness under the circumstances of the discharge. Some degradation of groundwater by the Discharger is consistent with Resolution 68-16 provided that the degradation is:

a. Limited in extent;
b. Restricted to waste constituents characteristic of municipal wastewater and not totally removable by best practicable treatment and control (BPTC) measures;
c. Minimized by fully implementing, regularly maintaining, and optimally operating BPTC measures;
d. Demonstrated to be consistent with WQOS prescribed in the basin plan; and
e. Justified to be consistent with the maximum benefit to the people of California.

41. Soil survey maps developed by the United States Department of Agriculture indicates soils in the area of the WWTF include Exeter Loams, Handford Sandy Loams, and to a lesser extent, San Joaquin Loams. An April 1983 report entitled *Selection of Monitoring Wells for Cutler-Orosi Wastewater Facility,* submitted by John Carollo Engineers, indicates that soil pits dug in the reclamation area are underlain by 3-feet of sandy loam, one-foot of hardpan, another 3.5 foot thick layer of sandy loams and another 1.5 foot thick layer of hardpan.

42. As further described in the Information Sheet, the Discharger installed and maintains a groundwater monitoring well network to monitor groundwater affected by discharges to the Use Area (See Attachment C). The network is comprised of five wells around the periphery of the WWTF property. Well A is in the northwest corner of the property and Well B is approximately 1,000 feet west southwest of Well A. Well C is on the western boundary of the property, at the midpoint between Avenue 404 and the property corner directly to the north. Well D is 1,200 feet south of Well C at the southwest corner of the property. Well E is at the property corner at Avenue 404 and Road 118, some 880 feet east and 400 feet north of Well D. Groundwater contours based on data from these wells indicate that flow under the Use Area is generally in a west southwest direction, such that Well A may be representative of background conditions. Depth of groundwater fluctuations was generally less than five feet from January 1997 to August 2001 and has generally been greater than five feet since September 2001. Well C, and possibly Well B, are likely to experience groundwater impacts from recycling activities.

Wells D and E may be subject to impacts from recycling activities, and impacts from storage pond percolation.

43. Monitoring data from the existing network indicates that groundwater passing under the WWTF and Use Areas contains elevated concentrations of salt constituents, boron, magnesium, nitrate (as N), and total nitrogen compared to background water quality and in some cases to applicable water quality limitations. For example, nitrate occasionally exceeds the State Maximum Contaminant Level (MCL) of 10 mg/L. No wells are positioned to adequately characterize whether there has been unreasonable impact from sludge drying and storage and effluent holding ponds on underlying groundwater. No wells are positioned to determine the extent of or to conclusively identify the cause of groundwater nitrate concentrations exceeding the MCL. Additional groundwater investigation with an expanded monitoring well system is appropriate.

44. Certain aspects of the WWTF described in Finding 4 do not reflect BPTC. Deficiencies in waste treatment and control include, but are not necessarily limited to:

a. Use of unlined sludge beds and sludge storage lagoons;
b. Failure to periodically remove accumulated sludge from unlined ponds, lagoons, and beds;
c. Failure to adequately maintain WWTF equipment (e.g., flow monitoring devices, sampling devices, clarifier/digesters, trickling filters, etc.) to ensure compliance with WDRs Order No. 97-106;

45. Provision I.8 establishes a time schedules for the Discharger to evaluate BPTC for items a through c in Finding 44.

46. As described in Finding 43, the current groundwater monitoring network is generally insufficient to determine the area affected, or the area that could potentially be affected, by the WWTF discharge. Down gradient wells do show nitrate impacts above the MCL for nitrate. As described in Finding 35, Finding 5 does not represent a definitive inventory of crops that are or could be grown in the area potentially affected by the discharge.

47. It is reasonable and appropriate to require the Discharger to assemble the technical information necessary for this Regional Board to determine the area potentially affected by the discharge, the controlling beneficial uses of groundwater, and derive appropriate numerical groundwater quality objectives for the WWTF that are consistent with the Basin Plan. Provision No. I.7 requires the Discharger to conduct a Hydrogeologic Investigation to address groundwater monitoring network deficiencies and to determine the area that could be affected by the discharge. Provision I.9 requires the Discharger to conduct studies to:

a. Determine the quality and spatial extent of groundwater affected by the discharge and the spatial extent of groundwater that could be affected by the discharge.
b. Determine the types of crops that are, and could potentially be, grown, and any other potential beneficial uses of groundwater, that could be affected by the discharge.

c. Determine salinity source control measures that can be implemented to reduce the salinity of the WWTF discharge and the salinity of water percolating to groundwater.
d. Evaluate and propose, with supporting documentation, appropriate numeric groundwater quality objectives for groundwater that could be affected by the WWTF discharge.
e. Reevaluate the irrigation management plan to ensure wastewater application will comply with resulting numerical groundwater quality objectives.

48. Following the completion of the studies required by Provision I.9, this Order will be reopened to consider final numerical groundwater limitations.

49. Until the work required by Provision I.9 is completed by the Discharger and reviewed by this Regional Board, it is reasonable to employ, where numerical water quality objectives do not exist, narrative groundwater quality limitations that proscribe the discharge from adversely affecting the beneficial uses of groundwater within the area potentially impacted by the discharge. These groundwater limitations are protective of present and anticipated beneficial uses and maintain groundwater quality consistent with water quality objectives set forth in the Basin Plan.

EFFLUENT LIMITATIONS DISCHARGE 001

50. The bases for effluent limitations for **Discharge 001** follow:

a. ***BOD_5 and TSS:*** The Basin Plan requires discharges of municipal and domestic wastewater to land in excess of 1 million gallons per day to remove 80 percent or reduce to 40 mg/L, whichever is more restrictive, both 5-day BOD_5 and suspended solids. However, the Federal Clean Water Act requires POTWs to meet secondary treatment standards. These standards are promulgated in 40 CFR 133.102, which specifies that secondary treatment requires that the monthly and weekly average effluent BOD and TSS concentrates do not exceed 30 mg/L and 45 mg/L, respectively. It also specifies that the WWTF must remove 85 percent of these constituents. It is appropriate to apply the most stringent limits for conventional pollutants to both Discharge 001 and Discharge 002 to achieve consistent operation and performance of the WWTF.

b. ***Settleable Solids:*** Limitations for settleable solids for Discharge 001 of 0.2 ml/L as an average and 0.5 ml/L as a daily maximum are carried over from the previous permit as a means of discerning clarifier performance and compliance with best practicable treatment and control (BPTC) requirements.

c. ***Total Coliform Organisms:*** Order No. 97-106 established coliform effluent limits of 23 MPN/100 mL as a 7-day median and 500 MPN/100 mL as a daily maximum to minimize the potential for groundwater degradation with pathogens when groundwater is less than five feet below the ground surface (i.e., when there is not adequate separation between pond inverts and groundwater remove pathogens as the wastewater percolates). This Order carries the 23 MPN/100 mL as a 7-day median over from Order No. 97-106 and

implements it as a 7-sample median for discharges of 7-days or more or a median of all samples collected during the period of discharge if the discharge is less than 7-days. This Order also reduces the 500 MPN/100 mL limit to 240 MPN/100 mL to be consistent with the daily maximum coliform limit appropriate for discharges to Sandy Creek.

d. ***EC***: The effluent limits are based on limits from the Basin Plan. The maximum EC of the discharge shall not exceed the source water EC plus 500 µmhos/cm, or a maximum of 1000 µmhos/cm, whichever is less.

e. ***Chloride and Boron***: Chloride and boron limits are based on requirements in the Basin Plan for municipal and domestic wastewater discharges to land, and are set at 175 mg/L for chloride and 1.0 mg/L for boron.

SURFACE WATER

Beneficial Uses

51. Sand Creek is an intermittent stream that carries local storm water runoff southerly to Cottonwood Creek. Cottonwood Creek flows into Cross Creek, which flows to the Tule River. Sand Creek usually is dry during the summer. Maximum flow capacity is approximately 500 cubic feet per second (cfs), though flows generally do not exceed 5-10 cfs.

52. Sand Creek is a Valley Floor Water and such waters have been designated to have beneficial uses of:

a. Agricultural supply (AGR),
b. Industrial service supply (IND),
c. Industrial process supply (PRO),
d. Water contact recreation (REC-1),
e. Non-contact water recreation (REC-2),
f. Warm freshwater habitat (WARM),
g. Wildlife habitat (WILD),
h. Rare, threatened, or endangered species (RARE), and
i. Groundwater recharge (GWR).

53. State Board adopted Order No. WQ2002-0015 on 3 October 2002 concerning the WDRs for Vacaville's Easterly Wastewater Treatment Plant. This precedential decision provides guidance on implementing the Basin Plan, particularly the protection of beneficial uses as designated in an effluent dominated water body where preliminary evidence indicates the uses do not and are unlikely to occur and thus warrant re-evaluation before new costly mitigations are required solely to protect the uses in question. The Discharger has not presented such preliminary evidence and no provision for gathering evidence and waving designated beneficial uses is unchanged in this order.

Water Quality Objectives/Receiving Water Limits / Basin Plan Limits

54. The Basin Plan includes numeric surface water quality objectives (WQOs) for ammonia, fecal coliform organisms, dissolved oxygen (DO), pH, EC, radioactivity, temperature, and turbidity and narrative surface water quality objectives for biostimulatory substances, color, floating matter, oil and grease, pesticides, sediment, settleable matter, suspended material, tastes and odors, and toxicity. Accordingly this Order specifies receiving water limitations that implement all these numeric (e.g., temperature, turbidity) and narrative (e.g., color, taste, and odor) WQOs in the Basin Plan.

55. To protect the designated WARM beneficial use, the DO concentration in the receiving water must be maintained at the Basin Plan WQO of 5 mg/L.

56. To protect the designated WARM and WILD beneficial uses, the receiving water must be free of toxic substances in toxic concentrations. As chlorine and ammonia are known to cause toxicity to aquatic organisms in surface waters, the discharge cannot contain chlorine and ammonia in toxic concentrations. Untreated domestic wastewater contains ammonia. Wastewater treatment plants commonly use nitrification, a biological process that converts ammonia to nitrate, to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. The Discharger uses UV and not chlorine for disinfection so residual chlorine is absent in effluent and effluent limitations are not appropriate.

57. The Basin Plan sets maximum salinity effluent limits for discharges of treated municipal and domestic wastewater to surface waters. It specifically states the maximum effluent EC shall not exceed that of the source water plus 500 µmhos/cm or 1000 µmhos/cm, which ever is more stringent. It also states that the chloride concentration shall not exceed 175 µmhos/cm and the boron concentration shall not exceed 1.0 mg/L.

California Toxics Rule Requirements Discharge 002

58. Section 1.3 of the SIP requires imposition of a water quality-based effluent limitation for a priority pollutant if: (1) the maximum effluent concentration (MEC) is greater than the most stringent CTR criteria or applicable site-specific Basin Plan objective; (2) the ambient background concentration is greater than the CTR criterion or applicable site-specific Basin Plan objective; or (3) other information is available to determine that a water quality-based effluent limitation is necessary to protect beneficial uses.

59. The Discharger was issued a CWC Section 13267 Order on 27 February 2001 requiring it to submit effluent and receiving water monitoring data meeting the requirements of the SIP to assist this Board in conducting the reasonable potential analyses (RPAs) pursuant to the SIP and 40 CFR 122.44(d). On 9 September 2002, the Discharger submitted a single set of effluent data for the required priority pollutants. The data were from 26 April 2002 and only from effluent. No flow in Sand Creek prevented collection of receiving water data at the time. The Discharger did not submit any data or explanation for January 2002.

60. The RPA for CTR and NTR pollutants was based on the submitted effluent monitoring data, as no background receiving water data are available. Without the upstream or background water quality data, the RPA is substantially incomplete. To complete the RPA, it is appropriate to require the Discharger to resample the effluent and receiving water for both upstream and downstream water quality data. Such a requirement is included in the attached Monitoring and Reporting Program. It is also appropriate to include a reopener to allow inclusion of effluent limitations deemed necessary following review of the required data.

61. Based on the RPA methodology described in the SIP, no priority pollutants have been found to have reasonable potential to cause or contribute to an excursion above water quality objectives or water quality criteria in the receiving water. Many of the constituents were not detected in the effluent and many do not have numeric water quality objectives or criteria to be compared against the maximum effluent concentration. Based on the RPA, no effluent limits currently are required for priority pollutants, though additional monitoring for priority pollutants is required based on the 27 February 2001 letter, subsequent letters from the Regional Board, Provisions contained herein, and as described in the attached Monitoring and Reporting Program. The RPA results are presented in further detail in the attached Information Sheet.

EFFLUENT LIMITATIONS DISCHARGE 002

62. The bases for effluent limitations for **Discharge 002** follow:

a. ***Dilution:*** Effluent limitations in this Order do not give the Discharger the benefit of dilution by the surface receiving water as no dilution is available in the receiving water at times. Water quality-based effluent limitations must reflect WQOs and water quality criteria at the point of discharge.

b. ***BOD_5 and TSS:*** BOD_5 limits are based on secondary treatment standards at 40 CFR 133.102, which require that BOD_5 not exceed a 30-day average of 30 mg/L and a 7-day average of 45 mg/L and that the average percent removal of BOD_5 be no less than 85%. The 30-day average and 7-day average limits are implemented as monthly and weekly average limits. The maximum daily limit is calculated based on the 30-day average limit using the standard statistical procedures in the SIP and USEPA's TSD for describing effluent concentrations using a lognormal distribution.

c. ***pH:*** The Basin Plan requires that the pH of receiving waters not be depressed below 6.5 or raised above 8.3 standard units. As the discharge is at times the only flow in Sand Creek, these limits apply directly to the discharge.

d. ***Settleable Solids:*** The Basin Plan states that "[w]aters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses." Effluent limits for settleable solids are based on limitations from the previous permit and were developed to attain this Basin Plan narrative water quality objective for settleable matter.

e. ***Total Coliform Organisms:*** Habitation downstream of the discharge is sparse and there is limited opportunity for contact with the waters of Sand Creek in the vicinity of the discharge. The WWTF is prohibited from discharging to Sand Creek during the summer months when upstream flow in the creek is most likely to be low or nonexistent. Discharges are only permitted from 1 November through April 30 when flow is more likely and cooler temperatures discourage REC-1 and REC-2 uses. These conditions are consistent with those described by DHS, as requiring effluent coliform bacteria median limit not to exceed 23 MPN/100 mL. In Order No. 97-106, the 23 MPN/100 mL requirement was interpreted as a 7-day median limit. This Order specifies a 7-sample median limit where discharge is for seven or more days or a median of all samples collected during the period of discharge if discharge is for less than seven days. The daily maximum requirement for total coliform of 240 MPN/100 mL is being carried over from Order No. 97-106. This Order requires daily sampling for total coliform during discharges to Sand Creek.

f. ***EC:*** The effluent limits are based on limits from the Basin Plan. The maximum EC of the discharge shall not exceed the source water EC plus 500 µmhos/cm, or a maximum of 1000 µmhos/cm, whichever is less.

g. ***Chloride and Boron:*** Chloride and boron limits are based on requirements in the Basin Plan for municipal and domestic wastewater discharges to land, and are set at 175 mg/L for chloride and 1.0 mg/L for boron.

h. ***Ammonia:*** The Basin Plan states that "Waters shall not contain un-ionized ammonia in amounts which adversely affect beneficial uses. In no case shall the discharge of wastes cause concentrations of unionized ammonia (NH_3) to exceed 0.025 mg/L (as N) in receiving waters." Ammonia effluent limits reflect no dilution.

i. ***Acute Whole Effluent Toxicity:*** Acute whole effluent toxicity limits are included in this Order based on the narrative water quality objective for toxicity in the Basin Plan and requirements in Section 4 of the SIP.

ANTIDEGRADATION FINDINGS

63. Regarding discharges to land, as described above in Findings 43 through 49, imposed tasks will assure the highest water quality consistent with the maximum benefit to the people of the State will be achieved. Accordingly, the discharge as authorized herein is consistent with the antidegradation provisions of Resolution 68-16.

64. Regarding discharges to surface water, the conditional discharge as permitted herein is consistent with the antidegradation provisions of 40 CFR 131.12 and Resolution 68-16.

Compliance with these requirements will result in the best practicable treatment and control of the discharge, prevent pollution and nuisance, and maintain the highest water quality.

GENERAL FINDINGS

65. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code sections 21000 et seq.), in accordance with CWC section 13389.

66. The State Board adopted the General Industrial Activities Storm Water Permit (General Permit) on 19 November 1991, and amended it on 17 September 1992 and 17 April 1997. The General Permit prescribes waste discharge requirements for discharges of storm water associated with industrial activities, excluding construction activities, and requires submittal of a Notice of Intent by industries to be covered under the permit. The Discharger must apply for and obtain coverage under this permit.

67. CWC section 13267(b)(1) states in part:

> (a) A regional board, in establishing …waste discharge requirements…may investigate the quality of any waters of the state within its region … (b)(1) In conducting an investigation specified in [Section 13267] subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

68. CWC Section 13383 states:

> (a) The state board or a regional board may establish monitoring, inspection, entry, reporting, and record keeping requirements, as authorized by Section 13377 or by subdivisions (b) and (c) of this section, for any person who discharges pollutants … any person who owns or operates a publicly owned treatment works or other treatment works treating domestic sewage, or any person who uses or disposes of sewage sludge.
>
> (b) The state board or the regional boards may require any person subject to this section to establish and maintain monitoring equipment or methods, including, where appropriate, biological monitoring methods, sample effluent as prescribed, and provide other information as may be reasonably required.
>
> (c) The state board or a regional board may inspect the facilities of any person subject to this section pursuant to the procedure set forth in subdivision (c) of Section 13267.

69. The attached Monitoring and Reporting Program No. R5-2006-XXXX required by this Order is necessary to determine whether the Discharge complies with these waste discharge requirements.

70. The State Water Board adopted the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (Order No. 2006-0003-DWQ) on 2 May 2006. The General Order prescribes waste discharge requirements for discharges from sanitary sewer systems greater than one mile in length that convey untreated or partially treated wastewater to a publicly owned treatment facility in the State of California. The Discharger is required to obtain coverage under General Order No. 2006-0003-DWQ.

71. Pursuant to CWC Section 13263(b), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

72. A 1993 Memorandum of Understanding (MOU) between this Regional Board, the California Department of Fish and Game and the Mosquito Abatement and Vector Control Districts of the South San Joaquin Valley specifies vegetation management requirements for wastewater ponds/lagoons, etc. The MOU specifies that vegetation operators at WWTFs in areas that attract nesting birds should be suspended during the 1 April to 30 June bird nesting season.

73. The USEPA and this Board have classified this discharge as a major discharge.

74. The information in the attached Information Sheet and all attachments in developing findings, terms, and conditions of this Order, and the Information Sheet and all attachments has been considered are part of this Order.

75. Interested agencies and persons have been notified of the intent to prescribe waste discharge requirements for this discharge and have been provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

76. In a public meeting, all comments pertaining to the discharge were heard and considered.

77. This Order shall serve as waste discharge requirements pursuant to section 13263 of the CWC relative to any discharge of waste to land and serve as an NPDES permit relative to any discharge of pollutants to surface water pursuant to CWC Section 13377 and CWA Section 402 [Title 33, U.S.C. 1342(a)], and amendments thereto. Authorization for discharge shall take effect upon the date of adoption for both types of discharge unless USEPA registers objections regarding surface water discharge. If the USEPA objects to the NPDES aspects of this order, it means any discharge to Sand Creek must cease until the objections are resolved. In the interim, the objection shall not void other aspects of this Order.

IT IS HEREBY ORDERED that Order No. 97-106 is rescinded and, pursuant to CWC sections 13263, 13267, 13377, and 13383, the Cutler-Orosi Joint Powers Authority, its agents, successors and assigns, in order to meet the provisions contained in Division 7 of the CWC and regulations adopted

thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, shall comply with the following:

A. Discharge Prohibitions:

1. Discharge of pollutants to Sand Creek from other than Discharge 002 are prohibited, and is prohibited from **1 May through 31 October** of each year.

2. The by-pass or overflow of wastes is prohibited, except as allowed by **Standard Provision A.13**.

3. Discharge of waste classified as "hazardous" or "designated" as defined in Title 23 CCR, sections 2521(a) and 2522(a) is prohibited.

B. Discharge Specifications – Discharge 001

1. The monthly average daily discharge effluent flow (total flow from Discharge 001 and Discharge 002) shall not exceed 2.0 mgd.

2. Effluent from Discharge 001 shall not exceed the following limits:

Constituent	Units	Average Monthly Limitation	7-Sample Median Limit	Maximum Daily Limitation
BOD_5[1]	mg/L	30	--	60
Total Suspended Solids (TSS)	mg/L	30	--	60
Total Coliform Organisms[2]	MPN[3]/100 mL	--	23[4]	240
Chloride	mg/L	--	--	175
Settleable Solids	ml/L	0.2	--	0.5
Boron	mg/L	--	--	1.0

[1] Five-day, 20°C biochemical oxygen demand (BOD)
[2] Limits apply only when groundwater is less than five (5) feet below ground surface based on groundwater monitoring well data.
[3] MPN = Most Probable Number
[4] Median of all daily samples for discharges less than seven days in duration.

3. The arithmetic mean of 20°C BOD (5-day) and total suspended solids (TSS) in effluent samples collected from Discharge 001 over a monthly period shall not exceed 15 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (85 percent removal).

4. The maximum EC (at 25°C) of Discharge 001 shall not exceed the source water EC (at 25°C) plus 500 µmhos/cm, as calculated based on the most recent quarterly source water sampling, or a maximum of 1000 µmhos/cm, whichever is less. The source water EC shall be determined as a weighted average.

C. Effluent Limitations – Discharge 002 (1 November through 30 April)

1. Effluent from Discharge 002 shall not exceed the following limits:

Constituent	Units	Average Monthly Limitation	Average Weekly Limitation	7-Sample Median Limitation	Maximum Daily Limitation
BOD_5[1]	mg/L	30	45	--	60
	lb/day[2]	500	750	--	1000
Total Suspended	mg/L	30	45	--	60
Solids (TSS)	lb/day[2]	500	750	--	1000
Settleable Solids	ml/L	0.1	--	--	0.5
Total Coliform Organisms	MPN[3]/100mL		--	23[4]	240
Chloride	mg/L	--	--	--	175
	lb/day[2]	--	--	--	2920
Boron	mg/L	--	--	--	1
	lb/day[2]	--	--	--	16.7
Un-ionized Ammonia	mg/L	--	--	--	0.025
(NH_3 as N)	lb/day[2]	--	--	--	0.42

[1] Five-day, 20°C biochemical oxygen demand (BOD)
[2] Based on a design flow of 2.0 mgd; lb/day = flow (mgd) x concentration (mg/L) x 8.34
[3] MPN = Most Probable Number
[4] Median of all daily samples for discharges less than seven days in duration

2. The arithmetic mean of 20°C BOD (5-day) and total suspended solids (TSS) in effluent samples collected from Discharge 002 over a monthly period shall not exceed 15 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (85 percent removal).

3. Discharge 002 shall not have a pH less than 6.5 nor greater than 8.3 standard units at any time.

4. Survival of aquatic organisms in 96-hour bioassays of undiluted waste from Discharge 002 shall be no less than:

Minimum for any one bioassay 70%
Median for any three or more consecutive bioassays 90%

5. The maximum EC of Discharge 002 shall not exceed the source water EC (at 25°C) plus 500 µmhos/cm, as calculated based on the most recent quarterly source water sampling, or a maximum of 1000 µmhos/cm, whichever is less. The source water EC shall be determined as a weighted average.

D. Recycled Water Specifications

The following specifications apply to the Use Areas under the ownership and control of the Discharger.

1. Use of recycled water as permitted by this Order shall comply with all the terms and conditions of the most current Title 22 regulations.

2. All uses of recycled water shall provide for appropriate backflow protection for potable water supplies as specified in Title 17, CCR, §7604, or as specified by DHS.

3. Recycled water shall remain within the permitted Use Area (as defined in Finding 5).

4. Use of recycled water shall be limited to flood irrigation of fodder, fiber, seed crops, and of crops that undergo extensive commercial, physical, or chemical processing before human consumption.

5. Application of wastewater and commercial fertilizer to Use Areas shall be at reasonable agronomic rates considering the crop, soil, climate, and irrigation management system in accordance with the Use Area management plan required under Provision I. 7 of this Order, subject to Executive Officer approval. The annual nutrient loading of Use Areas, including the nutritive value of organic and chemical fertilizers and of the recycled water shall not exceed the crop demand.

6. The Discharger shall maintain the following setback distances from areas irrigated with undisinfected secondary recycled water in the Use Area: *See Table below*

Setback Distance (feet)	To
25	Property Line
30	Public Roads
Setback Distance (feet)	To
50	Drainage courses
100	Irrigation and Domestic
150	Domestic wells

7. The perimeter of Use Areas shall be graded to prevent ponding along public roads or other public areas.

8. Areas irrigated with recycled water shall be managed to prevent breeding of mosquitoes. More specifically:

    a. Applied irrigation water must infiltrate completely within 48 hours after application.

    b. Ditches not serving as wildlife habitat should be maintained free of emergent, marginal, and floating vegetation.

    c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store recycled water.

9. Recycled water shall be managed to minimize runoff onto adjacent properties not owned or controlled by the Discharger.

10. Recycled water used for irrigation shall be managed to minimize erosion.

11. Recycled water shall be managed to minimize contact with workers.

12. If recycled water is used for construction purposes, it shall comply with the most current edition of *Guidelines for Use of Recycled Water for Construction Purposes*. Other uses of recycled water not specifically authorized herein shall be subject to the approval of the Executive Officer and shall comply with Title 22.

13. Public contact with recycled water shall be precluded through such means as fences and signs, or acceptable alternatives. Signs with proper wording (shown below) of a size no less than four inches high by eight inches wide shall be placed at all areas of public access and around the perimeter of all areas used for effluent disposal or conveyance to alert the public of the use of recycled water. All signs shall present the international symbol similar to that shown in Attachment D and present the following wording:

RECYCLED WATER - DO NOT DRINK

AGUA DE DESPERDICIO RECLAMADA - NO TOME

E. Pond/Lagoon Specifications

1. Objectionable odors from the WWTF holding ponds and sludge lagoons shall not be perceivable beyond the limits of the wastewater treatment and disposal areas.

2. As one means of discerning compliance with storage pond/lagoon Specification E.1., the dissolved oxygen content in the upper zone (1-foot) of wastewater in ponds/lagoons shall not be less than 1.0 mg/L.

3. Ponds/lagoons shall be managed to prevent mosquito breeding. In particular,

    a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.

    b. Weeds shall be minimized through control of water depth, harvesting, and herbicides.

    c. Dead algae, vegetation, and debris shall not accumulate on the water surface.

    d. Vegetation management operations in areas in which nesting birds have been observed shall be carried out either before or after, but not during, the **April 1 to June 30** bird nesting season.

4. Public contact with wastewater shall be precluded through such means as fences and signs or other acceptable alternatives.

5. No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of groundwater limitations.

F. Sludge Disposal Specifications:

Sludge in this document means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the WWTF. Biosolids refers to sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment for agriculture, silviculture, horticulture, and land recycling activities.

1. Sludge and solid waste shall be removed from screens, sumps, ponds, etc., as needed to ensure optimal WWTF operation.

2. Treatment and storage of sludge generated by the WWTF shall be confined to the WWTF property and conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will violate Groundwater Limitations.

3. Any storage of residual sludge, solid waste, and biosolids on property of the WWTF shall be temporary and controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate Groundwater Limitations.

4. Residual sludge, biosolids, and solid waste shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27 CCR. Removal for further treatment, disposal, or reuse at sites (i.e., landfill, WWTF, composting sites, soil amendment sites)

operated in accordance with valid waste discharge requirements issued by a regional water quality control board will satisfy this specification.

5. Use of biosolids as a soil amendment shall comply with valid waste discharge requirements issued by a regional water quality control board. This may mean use of dischargers that have obtained coverage under the General Biosolids Order (State Board Water Quality Order No. 2000-10-DWQ, General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities) or equivalent individual waste discharge requirements.

6. Use and disposal of biosolids should comply with the self-implementing federal regulations of 40 CFR 503, which are subject to enforcement by the USEPA, not the Regional Board. If during the life of this Order the State accepts primacy for implementation of 40 CFR 503, the Regional Board may also initiate enforcement where appropriate.

7. Sludge stored onsite shall be disposed of in a timely manner. Unless otherwise infeasible, stored sludge shall be disposed of in two years or less.

8. Any proposed change in sludge use or disposal practice from a previously approved practice shall be reported to the Executive Officer and USEPA Regional Administrator at least **90 days** in advance of the change.

G. Receiving Water Limitations:

Receiving Water Limitations (for Sand Creek) are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this Order. Discharges from Discharge 002, in combination with other sources, shall not cause the following in Sandy Creek:

1. Un-ionized ammonia to be present in amounts that adversely affect beneficial uses or that exceed 0.025 mg/L (as N).

2. The fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200 MPN/100 ml or cause more than 10 percent of the total number of samples taken during any 30-day period to exceed 400 MPN/100 ml.

3. Chemical constituents in excess of the maximum contaminant levels (MCLs) specified in Title 22, CCR.

4. Biostimulatory substances to be present in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

5. Discoloration that causes nuisance or adversely affects beneficial uses.

6. Concentrations of dissolved oxygen to fall below 5.0 mg/L. The monthly median dissolved oxygen concentration shall not fall below 85 percent of saturation in the main water mass, and the 95th percentile concentration shall not fall below 75 percent of saturation.

7. Floating material, including but not limited to solids, liquids, foams, and scum, in concentrations that create a nuisance or adversely affect beneficial uses.

8. Oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.

9. The ambient pH to fall below 6.5, exceed 8.3, or change by more than 0.3 standard units from normal ambient pH.

10. Pesticides to be present in concentrations that adversely affect beneficial uses or cause an increase in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses.

11. Radionuclides to be present in concentrations that are deleterious to human, plant, animal, or aquatic life nor which result in accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

12. Suspended sediment load and suspended sediment discharge rate to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

13. Substances in concentrations that result in deposition of material that causes nuisance or adversely affects beneficial uses.
14. Suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

15. Taste or odor-producing substances in concentrations that cause nuisance, adversely affect beneficial uses, or impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to domestic or municipal water supplies.

16. The ambient temperature to increase more than 5°F.

17. Toxic substances to be present in concentrations that produce detrimental physiologic responses in human, plant, animal, or aquatic life.

18. The turbidity to increase as follows:

    a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs;
    b. More than 20 percent where natural turbidity is between 5 and 50 NTUs;

c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs; and

d. More than 10 percent where natural turbidity is greater than 100 NTU.

19. Violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the SWRCB pursuant to the CWA and regulations adopted thereunder.

H. Groundwater Limitations:

Release of waste constituents from any storage, treatment, recycling, or disposal component associated with the WWTF shall not, in combination with other sources of the waste constituents, cause groundwater within influence of the WWTF and discharge area(s) to contain waste constituents in concentrations equal to or greater than that listed below:

1. Total coliform organisms of 2.2 Most Probable Number per 100 mL.

2. Chemical Constituents in concentrations that adversely affect beneficial uses.

3. Toxic constituents in concentrations that produce detrimental physiological responses in human, plant, or animal life.

4. Radionuclides in concentrations that are deleterious to human, plant, animal or aquatic life or which result in accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life.

I. Provisions:

1. The Discharger shall comply with Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES), dated February 2004, which are attached hereto and by reference a part of this Order. This attachment and its individual paragraphs are commonly referenced as Standard Provision(s).

2. The Discharger shall comply with Monitoring and Reporting Program (MRP) No. R5-2006-0XXX, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.

3. The Discharger shall keep a copy of this Order, including its attachments and Standard Provisions, at the WWTF for reference by operating personnel. Key operating personnel shall be familiar with its contents.

4. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, §§ 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, §§ 415 and 3065, all technical

reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

5. The Discharger shall use best practicable treatment and control, including proper operation and maintenance, to comply with terms of this Order.

6. **Within 90 days following adoption of this Order,** the Discharger shall submit a technical report that contains a characterization of the discharge for constituents identified in Title 22 (as described in Finding 25). The report shall describe the sampling program utilized to characterize the discharge, shall be prepared in accordance with Provision I.4, and is subject to Executive Officer approval.

7. **Hydrogeologic Investigation and Groundwater Monitoring Tasks.** The Discharger shall propose a work plan and schedule for conducting a hydrogeologic investigation within the area affected and potentially affected by the WWTF and its discharges to land, including any impacts from holding ponds, sludge lagoons and drying beds, and effluent recycling areas.

   The Discharger shall submit a Preliminary Report that describes the area's hydrogeology, existing wells (active and otherwise), local well construction practices and standards, and any well restrictions. It must also propose the number, location, and characteristics of additional monitoring wells needed to fully assess the impacts to groundwater of the Discharger's activities and include a Monitoring Well Installation Work Plan that satisfies Attachment E, *Standard Monitoring Well Provisions for Waste Discharge Requirements*. The resulting network shall include one or more background monitoring wells and a sufficient number of designated monitoring wells to evaluate the WWTF's impacts and potential impacts on underlying groundwater. These shall include monitoring wells immediately downgradient of representative treatment, storage, and disposal units that do or may release waste constituents to groundwater including the wastewater Use Areas. All wells shall comply with appropriate standards as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981), and any more stringent standards adopted by the Discharger or County pursuant to CWC §13801. The existing groundwater monitoring well network shall be evaluated as part of this effort, and the proposed network shall include existing monitoring wells where they will serve to measure compliance or provide other relevant information (e.g., depth to groundwater) and recommend their destruction if they will no longer serve a useful purpose.

   Once the new monitoring wells have been added to the groundwater monitoring network, the Discharger shall submit an Interim Report including the information specified in Monitoring Well Installation Report of Results that satisfies Attachment E, *Standard Monitoring Well Provisions for Waste Discharge Requirements.*

   The Discharger shall continue to monitor groundwater in existing monitoring wells in accordance with the MRP unless and until individual existing wells are removed from the

approved network. After the first sampling event, the Discharger shall report on its sampling protocol as specified in this Order's MRP. After one year of monitoring, the Discharger shall characterize in a technical report, background groundwater quality and the spatial extent and magnitude of any impacts caused by discharges of waste from the WWTF. The Discharger shall comply with the following compliance schedule in implementing the work required by this Provision:

	Task	Compliance Date
a.	Submit work plan and schedule to conduct hydrogeologic investigation.	**Within 60 days following the adoption of this Order.**
b.	Submit Preliminary Report including Monitoring Well Installation Work Plan.	**Within 60 days of Executive Officer approval of the work plan and schedule.**
c.	Implement Monitoring Well Installation Work Plan.	**Within 30 days of Executive Officer approval of the Task b work plan.**
d.	Submit Interim Report including Monitoring Well Installation Report of Results.	**30 days** following completion of Task c.
e.	Submit final technical report.	**385 days** following completion of Task d.

Technical reports submitted pursuant to this Provision shall be subject to the requirements of Provision I. 4 and are subject to Executive Officer approval.

8. **BPTC Evaluation Tasks:** The Discharger shall propose a work plan and schedule to evaluate with respect to BPTC its use of unlined sludge beds and sludge storage lagoons, its sludge removal and disposal practices, and its operations and maintenance programs. Following completion of the evaluation, the Discharger shall submit a technical report describing the evaluation's results and critiquing each evaluated component with respect to BPTC and minimizing the discharge's impact on water quality. Where deficiencies are documented, the technical report shall provide recommendations for necessary modifications to achieve BPTC and identify the source of funding and proposed schedule for modifications. The schedule shall be as short as practicable but in no case shall completion of the necessary modifications exceed four years past the Executive Officer's determination of the adequacy of the evaluation, unless the schedule is reviewed and specifically approved by the Regional Board. The Discharger shall comply with the following compliance schedule in implementing the work required by this Provision:

Task	Compliance Date
a. Submit technical report: work plan and schedule for evaluation	**Within 3 months of adoption of this Order**
b. Commence evaluation	**30 days** following Executive Officer approval of Task a
c. Complete evaluation	As established by Task a or 2 years following Task b, whichever is sooner
d. Submit technical report: evaluation results	**60 days** following completion of Task c, or three years following Order adoption, whichever is sooner
e. Include in its annual report (described in the MRP) a description of the overall status of BPTC implementation and compliance with interim groundwater limitations over the past reporting year	Annually on **1 February** following completion of Task d

Technical reports submitted pursuant to this Provision shall be subject to the requirements of Provision I. 4 and are subject to Executive Officer approval.

9. **Groundwater Limitations Study.** The Discharger shall submit a technical report in the form of a work plan and proposed schedule to complete studies to compile sufficient technical data to determine applicable numerical groundwater quality objectives and to derive appropriate groundwater limitations for the area affected, and potentially affected, by the WWTF discharge. Studies must be designed to:

   a. Determine the spatial extent of groundwater affected by, and that could be affected by, the discharge.
   b. Determine the types of crops that are, and could potentially be, grown, and any other potential beneficial uses of groundwater, that could be affected by the discharge.
   c. Determine salinity source control measures that can be implemented to reduce the salinity of the WWTF discharge and the salinity of water percolating to groundwater.
   d. Evaluate and propose, with supporting documentation, appropriate numeric groundwater quality objectives for groundwater that could be affected by the WWTF discharge.
   e. Reevaluate the irrigation management plan to ensure wastewater application will comply with resulting numerical groundwater quality objectives.

   Study results must be compiled into a final technical report. The final technical report shall propose specific numeric groundwater limitations for each waste constituent that comply with

the most stringent applicable water quality objectives for that waste constituent. The most stringent applicable water quality objective shall be interpreted based on the Regional Board policy entitled "Application of Water Quality Objectives" on pages IV-21 through IV-23 of the Basin Plan. If the Discharger wishes the Regional Board to consider a proposed water quality limitation that is less stringent than the most stringent water quality objective necessary to protect the most sensitive beneficial use, it must provide documentation necessary to support the proposed limitation. For example, where the stringency of a proposed water quality objective can vary according to land use and other factors, the Discharger must provide documentation that a less stringent but attainable water quality objective is protective of all existing and probable beneficial uses. This documentation must be from public agencies and organizations with appropriate expertise and authority relative to the uses potentially affected by the less stringent objective, or the water quality necessary to sustain the uses. The Discharger should submit results of a validated groundwater model or other hydrogeologic information to support its proposal. The Discharger shall comply with the following compliance schedule in implementing the work required by this Provision:

	Task	Compliance Date
a.	Submit technical report: work plan and schedule	**Within 3 months of adoption of this Order**
b.	Commence studies	**30 days** following Executive Officer approval of Task a
c.	Complete studies	As established by Task a or 2 years following Task b, whichever is sooner
d.	Submit technical report summarizing results of studies and proposing appropriate numeric groundwater limitations.	**60 days** following completion of Task c, or three years following Order adoption, whichever is sooner
e.	Include in its annual report (described in the MRP) a description of the overall status of the studies.	Annually on **1 February** following completion of Task d

Where appropriate, the technical report may incorporate relevant information resulting from the Hydrogeologic Investigation and Groundwater Monitoring Tasks and BPTC Evaluation Tasks described in Provisions I.7 and I.8, respectively.

Technical reports submitted pursuant to this Provision shall be prepared in accordance with Provision I. 4 and are subject to Executive Officer approval as to adequacy.

10. Upon completion of tasks set forth in Provisions I.7, Hydrogeologic Investigation and Groundwater Monitoring Tasks, I.8, BPTC Evaluation Tasks, and I.9, Groundwater Limitations Study, the Regional Board shall reopen and revise this Order to contain conditions

designed to assure full implementation of BPTC and compliance with the maximum permissible groundwater limitations consistent with Resolution 68-16.

11. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

12. The Discharger shall conduct the chronic toxicity testing as specified in MRP No. R5-2006-XXXX. If the testing indicates that the discharge causes, contributes to, or has the reasonable potential to cause or contribute to an in-stream excursion above a water quality objective for toxicity, the Discharger shall initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon completion of the TIE, the Discharger shall submit a work plan to conduct a Toxicity Reduction Evaluation (TRE) and upon Executive Officer approval conduct the TRE. If necessary, this Order will be reopened and a chronic toxicity limitation included and/or a limitation for the specific toxicant identified in the TRE included. Additionally, if a chronic toxicity water quality objective is adopted by the State Water Resources Control Board, this Order may be opened to include an effluent limitation based on that objective.

13. **Priority Pollutant Evaluation**. The Discharger shall submit **between 180 days and 365 prior to the expiration of this Order** a technical report that proposes effluent limits for all CTR constituents showing a reasonable potential to cause or contribute to an exceedance of a water quality objective in Sand Creek. The reasonable potential analysis shall be consistent with the State Implementation Policy for all detected constituents. The technical report shall document the reasonable potential analysis and all supporting calculations. Provision 4 requirements apply to the technical report.

14. **Within 10 days** following any change in WWTF personnel that results the WWTF not being supervised by at least a Grade II operator, the Discharger shall provide written notification to the Regional Board that describes measures, and an implementation schedule, to ensure compliance with Title 23, CCR, §3680(a).

15. By **180 days following the adoption of this Order**, the Discharger shall submit an updated and revised Operations and Maintenance Manual and shall maintain an updated manual and a current maintenance log on site.

16. The Discharger shall report to the Regional Board any toxic chemical release data it reports to the state emergency response commission within 15 days of reporting the data to the Commission pursuant to Section 313 of the “Emergency Planning and Community Right to Know Act of 1986.”

17. The WWTF and disposal areas shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

18. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, National Pretreatment Standards: Prohibited Discharges, the necessary legal authorities, programs, and controls to ensure that the following incompatible wastes are not introduced to the treatment system, where incompatible wastes are:

    a. Wastes, which potentially may create a fire or explosion, hazard in the treatment works;

    b. Wastes which will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0, unless the works is specially designed to accommodate such wastes;

    c. Solid or viscous wastes in amounts which cause obstruction to flow in sewers, or which cause other interference with proper operation or treatment works;

    d. Any waste, including oxygen demanding pollutants (BOD, etc.), released in such volume or strength as to cause inhibition or disruption in the treatment works, and subsequent treatment process upset and loss of treatment efficiency;

    e. Heat in amounts that inhibit or disrupt biological activity in the treatment works, or that raise influent temperatures above 40°C (104°F), unless the Regional Board approves alternate temperature limits;

    f. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;

    g. Pollutants which result in the presence of toxic gases, vapors, or fumes within the treatment works in a quantity that may cause acute worker health and safety problems;

    h. Any trucked or hauled pollutants, except at points predesignated by the Discharger:

19. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, National Pretreatment Standards: Prohibited Discharges, the legal authorities, programs, and controls necessary to ensure that indirect discharges do not introduce pollutants into the sewerage that, either alone or in conjunction with a discharge or discharges from other sources.

    a. Flow through the system to the receiving water in quantities or concentrations that cause a violation of this Order, or

    b. Inhibit or disrupt treatment processes, treatment system operations, or sludge processes, use, or disposal and either cause a violation of this Order or prevent sludge use or disposal in accordance with this Order.

20. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Accordingly, the Discharger shall submit to the Regional Board on or before each report due date the specified document or, if an action is specified, a written report detailing evidence of compliance with the date and task. If noncompliance is being reported, the reasons for such noncompliance shall be stated, plus an estimate of the date when the Discharger will be in compliance. In the event of noncompliance, the Discharger shall notify the Regional Board by letter when it returns to compliance with the time schedule. Violations may result in enforcement actions, including Regional Board or court orders requiring corrective actions or imposing civil monetary liability, or in revision or rescission of this Order.

21. Prior to making any change to Discharge 002 or to the place of use or purpose of use of the wastewater, the Discharger shall obtain approval of, or clearance from the SWRCB (Division of Water Rights).

22. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Regional Board. To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Regional Board and a statement. The statement shall comply with the signatory paragraph of Standard Provision D. 6 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the CWC. Transfer shall be approved or disapproved in writing by the Executive Officer.

23. The Board may modify or reopen this Order prior to its expiration date in any of the following circumstances:

    a. If present or future investigations demonstrate that the discharge(s) governed by this Order will or have a reasonable potential to cause or contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters;

    b. New or revised water quality objectives (WQOs) come into effect for the receiving water. In such cases, effluent limitations in this permit will be modified as necessary to reflect updated WQOs. Adoption of effluent limitations contained in this Order is not intended to restrict in any way future modifications based on legally adopted WQOs or as otherwise permitted under federal regulations governing NPDES permit modifications;

    24. If translator or other water quality studies provide a basis for determining that a permit condition(s) should be modified. The Discharger may request permit modification on

this basis. The Discharger shall include in any such request an antidegradation and antibacksliding analysis.

25. The NPDES requirements of this Order expire on **XXXX,** and the Discharger must file a Report of Waste Discharge in accordance with Title 23, CCR, not later than 180 days in advance of such date to apply for renewal if it wishes to continue the surface water discharge (i.e., Discharge 002).

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on _____.

_____
PAMELA C. CREEDON, Executive Officer

MMG/fmc:8/25/06